generally recognised to be somewhat unreliable. In my Scottish material the number varies from 11 to 20, with an average of 17. The average numbers for the North African specimens are:—Tunis, 15; Tilghemt, 19; Laghouat, 18. Lilljeborg gives 16 for typical *A. cancriformis*. With regard to this character, all Ghigi's species are rather distinct, having in each case very few uncovered segments, but I do not think that too much importance should be attached to this point.

(4) The number and size of the denticles on the posterior sulcus of the dorsal shield is a character of some importance in comparing species of the *cancriformis* and *numidicus* group, but in the former species the variation is considerable and Ghigi's species fall well within its range of variation. Among Scottish specimens the number varies from 20–30 (average 26), while the average for the North African form is 30 (Tunis) or 28 (Tilghemt). Simon gives the number as 28 to 35.

I conclude from all this that all three of Ghigi's new species should be regarded as synonyms of *A. cancriformis*.

There are three other species which have been generally overlooked, but which should also probably be included in *A. cancriformis*. I refer to *Apus haliciensis*, *A. lublinensis*, and *A. varsoviensis* of Fiszer (1885). I am unable to read Fiszer's Polish description, but I cannot see in his figures any reason for regarding these species as distinct.

It must be admitted that the genera *Apus* and *Lepidurus* are extraordinarily difficult to deal with systematically, but it is clear that any attempt to found new species within them must be based upon an examination of a large amount of material.

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L.—*Notes on a new Subfossil Bear from Sweden.*

By EINAR LÖNNBERG, F.M.Z.S., etc.

[Plate IV.]

IN connection with the notes concerning the Bears of the *pruinosus* group, recently read before the Zoological Society of London, it may be of interest to draw attention to the fact that formerly also in Europe there existed Bears, which with regard to their large molars exhibit a certain resemblance to the members of the group mentioned. A very good example of this is offered by a subfossil Bear, the lower jaw of which was found many years ago in the province of Halland, southern Sweden.

This mandible has a very striking appearance, because its molars (Pl. IV. figs. 3 & 4) are very much larger than the corresponding ones of a recent *Ursus arctos* (fig. 2). The enamel of m_3 is tuberculated almost as much as in the Cave Bear, but even less coarsely, so far as my material for comparison reaches. The resemblance in this respect with *pruinosus* (fig. 1) is also apparent, but not so close. The situation of m_3 of the latter is, however, very similar to that in the fossil Bear from Halland. In consequence of the great size of the molars, in both these species the molar series extends backwards so far that, when viewed from the side, the posterior portion of m_3 is concealed behind *ramus ascendens* of the mandible (*cf.* fig. 4). This is never the case in *U. arctos,* and, so far as I know, only in quite young Cave Bears, and the present fossil specimen is not very young because m_2 shows plainly worn patches.

From the Cave Bears (including *U. deningeri* and *savini*) the present species differs in having the first, third, and fourth premolars developed, as the alveoli prove (*cf.* fig. 3). The fourth must have been of a comparatively very large size, as its alveolar length is not less than 15 mm. This is considerably more than in recent *U. arctos.*

The first molar was also large, as its alveolar length is 24·5 mm., thus greater than in recent *U. arctos* and approaching the Cave Bear group, but smaller than in *pruinosus.*

The dimensions of the crown of the second lower molar are 27·7 mm. in length, 17 mm. in width. It is thus very much larger than in any living *U. arctos* (*cf.* fig. 2) and approaching those of the Cave Bear group.

The dimensions of the crown of the third lower molar are 26 mm. in length and 18·2 mm. in breadth. This tooth also is consequently much larger than in the recent *U. arctos* and it (*cf.* fig. 2) is even somewhat longer than the same in *U. pruinosus.* To judge from Freudenberg's measurements (1914), these dimensions appear to be even larger than those of Bears named *U. deningeri* found in Germany, although smaller than those in the similarly named Bears from England. From these notes it may be apparent that this fossil Bear from Halland has a dentition quite unlike any other Bear, uniting the presence of many premolars, as in the *arctos* group, with the much increased size of the molars as in the *spelæus* group.

In connection with the great size of the teeth stands also the shortness of the interval between the alveolar rims of the canine and p_4, which in the present specimen is only 28·5 mm. Considering the fact that this animal was not very young, this shortness appears very remarkable. In a mandible (Pl. IV. fig. 2) of a Brown Bear, from Sweden, of equal length, the corresponding distance is 42 mm. In another specimen it sinks to about 35 mm., but, so far as I am aware, never goes beyond this latter measurement, so that the difference, even allowing for individual variation, is sufficiently great.

The shape of the whole mandible is also different from that of a recent Brown Bear. This difference consists of the more equal depth of *ramus horizontalis* along its whole length, and especially in the much greater breadth of *ramus ascendens*. This is illustrated by the following measurements :—

	The fossil mandible (figs. 3 & 4).	Recent specimen (fig. 2).
Total length from back of condyle..	238 mm.	237 mm.
Least height at diastema	44 „	40 „
Height below middle of m_3	53 „	51 „
Width of *ramus ascendens* just above *proc. artic.*	78 „	63 „

The lower surface of *processus angularis* is much broader and flatter than in a Brown Bear of similar size. The different markings indicating the insertion of the musculature are very strongly developed, and this, together with the broad *proc. coronoideus*, etc., indicates that this Bear was provided with a very powerful masticatory musculature. This, again, and the large molars with their tuberculated crowns give a hint that this Bear was even less carnivorous than the Brown Bear of the present time. Its diet must have been more omnivorous, or rather herbivorous, because the structure of the dentition must stand in connection with its mode of life.

So far as I can find out, this Bear is so well differentiated from other fossil as well as recent Bears that it must be regarded as constituting at least a separate subspecies, and it may thus be called *Ursus arctos nucifragus*. The latter name will be further explained below.

Most probably a renewed examination of subfossil bear-remains will prove that the same race may at one time have occurred in England and elsewhere in Europe.

The exact locality where this specimen was found is a peat-bog at Årnarp, in the parish of Snöstorp, east of the small river Fylle-å, in the province of Halland, in South-western Sweden. Thanks to the lately very much improved methods of investigation, the small remains found in the empty alveoli, *foramina nutritiva*, etc., can give information about the natural conditions at the place in question when this bone was imbedded. I am indebted to Dr. L. von Post for the following interesting information:—

"The mandible has been embedded in a telmatic sedge-peat, consisting of roots of sedge (*Carex*) and reeds, mosses, and sparse remains of *Sphagnum* and ferns (*Polystichum thelypteris*), and, in addition to this, containing pollen of heather, grasses, and *Typha*. There are also found rhizopods (*Centropyxis*) and diatoms (*Pinnularia*). The peat was formed in a low-lying, periodically flooded swamp, with a vegetation of sedge.

"An analysis of the pollen gives the following result:—

Betula	14	per cent.
Pinus	69	,,
Alnus	15	,,
Quercus	2	,,
Total	100	,,

"The following are lacking: *Salix*, *Ulmus*, *Tilia*, *Fagus*, *Carpinus*, and *Picea*. If, as above, the sum of all arboreal pollen is put as 100, the amount of pollen of *Corylus* is 44.

"A comparison of this with pollen diagrams from peat-bogs and with the succession of the marine layers in Halland and Scania proves that this pollen spectrum, described above, was formed during the first part of what we here call the post-Arctic warm epoch, or more precisely at a period during the post-Glacial submersion of Southern Scandinavia when the shore-line in the neighbourhood of Halmstad was about in the same position as now. The find is thus from the beginning of the *Littorina*-epoch.

"My investigations of the fossil pollen floræ, as well as the pollen spectrum which has been obtained from this Bear mandible, prove that the forest vegetation in South-western Sweden at that time, besides a number of pines, to a great extent consisted of hazel groves. These hazel groves had during the immediately preceding period played a very important part, and in certain districts of Scania and Halland had even been quite dominating. At the time when this mandible was imbedded and afterwards they were gradually transformed into mixed forests with alder and oak, in which hazel formed an undergrowth."

It appears to the present writer very probable that this rich occurrence of nut-bearing hazel was of very great importance to the big-toothed Bear, the jaw of which has been described above and, therefore, I have taken the liberty of indicating this connection with the name given.

EXPLANATION OF PLATE IV.

Fig. 1. Left half of ramus of mandible of a young individual of *Ursus pruinosus*, Blyth, from Kansu, West China; from above.

Fig. 2. Left half of ramus of mandible of Brown Bears (*Ursus arctos*, Linn.), from Sweden; from above.

Fig. 3. Left half of ramus of mandible of an extinct Bear (*Ursus arctos nucifragus*, subsp. n., from Halland, South Sweden; from above. (Type-specimen.)

Fig. 4. Ditto, from outer side.

LI.—*The Nomenclature and Subspecies of the Purple-faced Langur, with Notes on the other Langurs inhabiting Ceylon.*

By Martin A. C. Hinton.

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By the kindness of my friend Mr. W. W. A. Phillips and of the Director of the Colombo Museum, the British Museum has lately received a fine series of specimens illustrating the variation of the Purple-faced Langur in South-western Ceylon. This material enables me to clear up some points which have long been doubtful, and to direct attention to some others upon which further information is required.

Pithecus vetulus, Erxleben.

1777. *Cercopithecus vetulus*, Erxleben, Syst. Reg. An. p. 25.
1780. *Cercopithecus kephalopterus*, Zimmermann, Geograph. Gesch. ii. p. 185.
1785. *Simia cephalopterus*, Boddaert, Elenchus Animal. p. 58.
1792. *Cercopithecus silenus purpuratus*, Kerr, An. Kingd. p. 65.
1795. *Simia porphyrops*, Link, Beiträge, ii. p. 62.
1800. *Simia veter*, Shaw, Gen. Zool. i. p. 36 (nec Linnæus).
1807. *Simia latibarba*, Temminck, Cat. Syst. Ornith. et Quadrum. p. 3.
1812. *Cercopithecus latibarbatus*, Geoffroy, Ann. du Mus. xix. p. 94.
1825. *Cercopithecus leucoprymnus*, Otto, N. Acta Acad. Cæs. Leop. xii. p. 505, pl. xlvi. *bis*.
1833. *Semnopithecus nestor*, Bennett, Proc. Zool. Soc. 1833, p. 67.
1847. *Presbytes thersites*, Elliot, Blyth, J. Asiat. Soc. Bengal, xvi. p. 1271.
1876. *Semnopithecus kelaarti*, Schlegel, Monogr. des Singes, p. 52.

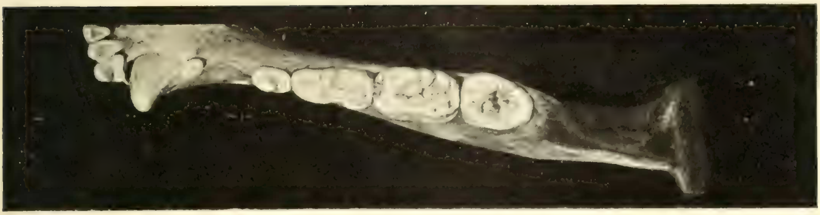

FIG. 1.

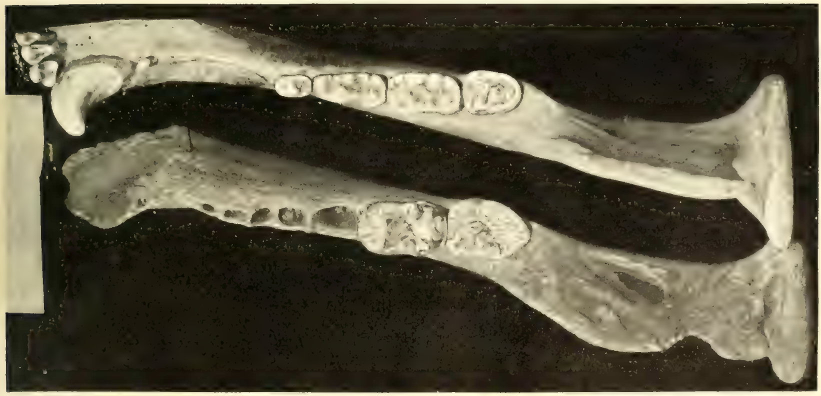

FIG. 2.

FIG. 3.

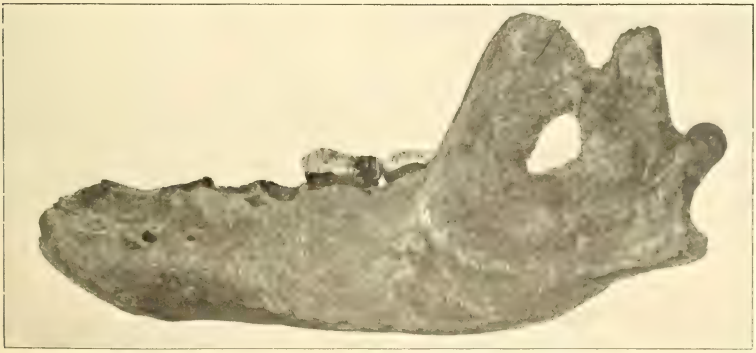

FIG. 4.

Ursus arctos nucifragus, subsp. n.